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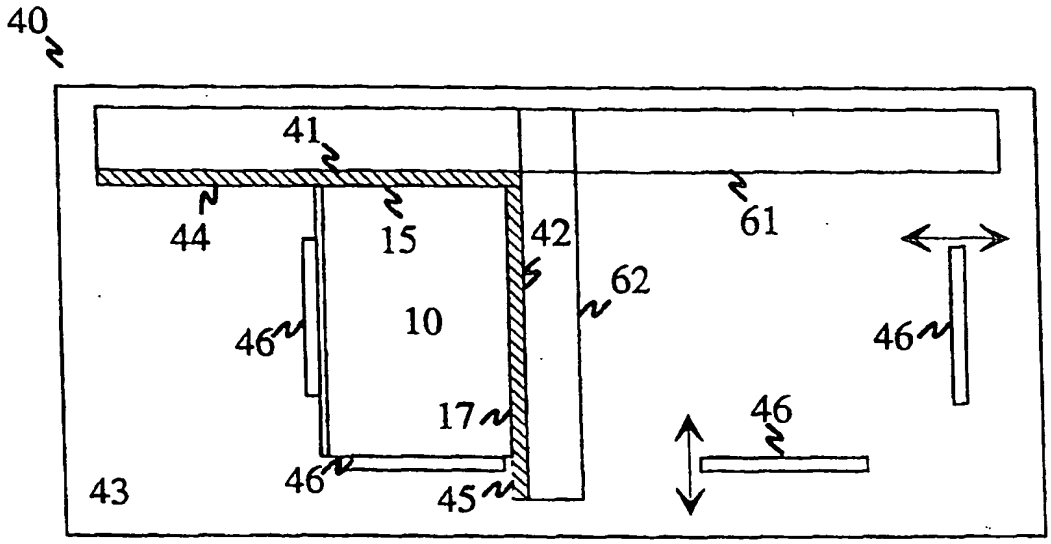

(57) Abstract

This invention relates to a method and apparatus for binding hard covers to, for example, digitally printed book blanks with soft covers, and a book bound according to the method. According to the method the book blank is supported and aligned by means of a first (44) and a second supporting surface (45), after which the first cover blank is aligned onto the book blank by means of a third (41) and a fourth (42) supporting surface. After this the book blank is turned and supported by means of a fifth (61) and a sixth (62) supporting surface. Finally a second cover blank is supported and aligned onto the book blank by means of a fifth (61) and a sixth (62) supporting surface.

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A method and apparatus for binding book covers and a book bound according to the method

This invention relates to a method according to claim 1 for binding book covers to a book blank. In addition, the invention relates to a book binding apparatus according to claim 10 for binding book covers to a book blank. Moreover, the invention relates to a bound book according to the preambles of claims 20 and 21.

Traditionally the making of books has been concentrated to big, specialized printing houses which have tried to keep the editions as large as possible in order to keep the costs per unit low. Improved digital printing techniques make it possible to produce a sufficient printing result with cheaper and more simple apparatuses. In addition, an advantage of digital printing is that the material of the book is stored in the computer, which makes it easy to print more books, if necessary.

Since digital printing on stiff materials is difficult, the digitally printed books are typically paper backs. However, hard covers add value to a book and because of this attempts have been made to develop methods for binding hard covers to book blanks with soft covers. Methods of this type have been described, for example, in US-patents 3,825,963 and 5,044,857. In both of said patents the book blank to be bound is placed between two press plates by means of which the blank is concentrated in the middle of the cover to be bound. Due to turning press plates the back part of the book blank can be pressed against the cover being bound.

Because the book blank is pressed between two turning press plates in the method according to the above mentioned patent publications, the apparatus must be rather massive in order to ensure that it is stable. Furthermore, the displacement machinery used for concentrating the book blank makes the apparatuses rather complex mechanically.

The object of this invention is to provide a new method which is more simple compared to prior art and a binding apparatus for binding book covers which is

simpler and easier to use than prior art. The method according to the invention is characterized by what is disclosed in the characterizing part of claim 10. The bound books according to the invention are characterized by what is disclosed in the characterizing parts of claims 20 and 22. Preferred embodiments of the invention are disclosed in the dependent claims.

The grip means used in one embodiment of the invention are activated at different times, whereby only the grip means needed at each time is activated. This makes the binding operation much easier when the user does not simultaneously have to control several active grip surfaces.

The grip means used in another embodiment of the invention is activated shortly before the cover blank is lowered onto the book blank. By this the time during which the grip means is active and susceptible to not-wanted fastening is kept as short as possible, which reduces not-wanted fastening due to mistakes made by the user.

In a third embodiment of the method the individual protective covering of the cover is put into place before binding the cover. This makes the arranging of the protective covering easier because the covering is easier to place on the cover blank before the book blank is fastened to the cover.

In a fourth embodiment of the method the book blank, the cover blank being bound or both of them are supported during binding by means of at least one movable supporting surface, whereby the book blank and the cover blank stay in place better during binding which leads to fewer binding errors.

In a fifth embodiment of the method some of the supporting surfaces are realized by raising the other supporting surfaces, whereby the binding apparatus can be made smaller. The raising of the supporting surfaces can be realized, for example, with supporting surfaces turning onto the supporting surfaces.

In a sixth embodiment of the method some of the supporting surfaces are

detachable, whereby the supporting surfaces behind them form new supporting surfaces. In this case the same physical supporting surfaces can be used as two supporting surfaces with different functions, which decreases the number of physical supporting surfaces and thus makes the apparatus smaller.

In a seventh embodiment of the method the back part of the cover part is supported from the direction of the book blank by means of end bands placed in the back of the book blank. Then the cover part stays more firmly in place during binding.

In an embodiment of the binding apparatus according to the invention the supporting surfaces used to support the book blank are lower than the thinnest book blank to be bound. Due to this it is possible to bind thin books with this apparatus, too.

In another embodiment of the binding apparatus according to the invention the supporting surfaces supporting the book blank and the supporting surfaces supporting the cover part are placed with respect to each other in such a way that the distances between them correspond to the distance between the sides of the book blank and the edges of the cover part. Hereby the cover of the book being bound extends to a desired distance over the book leaves protecting the book leaves from external blows.

In a third embodiment of the binding apparatus according to the invention the book binding apparatus comprises at least one movable supporting surface by means of which the book blank or cover part can be supported during binding. Hereby the book blank and cover part being bound stay in place better during binding which leads to fewer binding errors.

In a fourth embodiment of the binding apparatus according to the invention at least one supporting surface of the book binding apparatus includes a hole or an opening in order for the user of the apparatus to be able to hold the cover part firmly until the cover part has been lowered onto the book blank. This improves

the controllability of the cover part during binding which leads to fewer binding errors.

In a fifth embodiment of the binding apparatus according to the invention at least one of the supporting surfaces is at least partly made of a transparent material, whereby it is possible for the user to see how well the alignment of the book blank or cover part against the supporting surface has succeeded and, if necessary, to correct the alignment according to what he sees, which leads to fewer binding errors.

In a sixth embodiment of the binding apparatus according to the invention at least one supporting surface comprises a narrow hole extending to the level surface or close to it, through which hole the user can see how well the alignment of the book blank or cover part against the supporting surface has succeeded and, based on what he sees, correct the alignment, which leads to fewer binding errors. Outside the hole there can be an inclined plane mirror whereby it is possible for the user to look from above through the hole.

In a seventh embodiment of the binding apparatus according to the invention at least some of the supporting surfaces are detachable. In this case it is possible to use the same physical supporting surfaces as two supporting surfaces with different functions which decreases the number of physical supporting surfaces and thus makes the apparatus smaller.

In an eighth embodiment of the binding apparatus according to the invention at least some of the supporting surfaces are located on different level surfaces. In this case it is possible to realize the binding apparatus according to the invention in smaller, separate units which take up less space on the table.

In a ninth embodiment of the binding apparatus according to the invention at least some of the supporting surfaces are realized as turning supporting surfaces. Hereby it is possible to make the binding apparatus smaller.

In one embodiment of the book according to the invention the end band comprises a grip means provided with a removable protective covering. This makes the attachment of the end band to the book blank easier and faster.

The invention and its details are described more closely in the following, by referring to the enclosed drawings, wherein

Figure 1 shows a book blank that has been digitally printed or produced in some other way,

Figure 2 shows a cover part to be bound to the book blank,

Figure 3 shows a finished book which is comprised of a book blank and a cover part bound to it,

Figure 4 shows a book blank placed in a binding apparatus according to the invention,

Figure 5 shows the fastening of a first cover blank of the cover part to the book blank by using the binding apparatus according to the invention,

Figure 6 shows in an enlarged view the relation between the supporting surface used for supporting the book blank and the supporting surface used for supporting the cover blank in a binding apparatus according to the invention,

Figure 7 shows the fastening of a second cover blank of the cover part to the book blank by means of a binding apparatus according to the invention,

Figure 8 shows a book blank with end bands attached to it,

Figure 9 shows another binding apparatus according to the invention in which one supporting surface is realized by means of a turning supporting surface,

Figure 10 shows a supporting surface of the binding apparatus according to the invention in which a hole has been made, and

Figure 11 shows a binding apparatus according to the invention where narrow holes have been made into some of its supporting surfaces.

Figure 1 shows a perspective view from above of a book blank 10 which may have been produced, for example, by digital printing. The book blank 10 consists of

pages 14 which are fastened, for example, by gluing to the back part 11 of the book blank. In order to clarify the functioning of the method according to the invention, the cover pages of the book blank 10 are called the first 12 and the second cover page 13. Moreover, the side opposite to the back part 11 of the book blank is called the opening side 17 of the book blank and the sides adjacent the back part are called the first 15 and the second side 16.

Figure 2 shows from both sides the cover part 20, spread open, which is to be bound to the book blank 10. The cover part 20 consists of two cover blanks 22 and 21 and a back part 23. The first cover blank 21 is defined by the edges 26, 29, 31 of the cover part 20 and the back part 23 and the second cover blank 22 is defined by the edges 27, 28, 30 of the cover part 20 and the back part 23. In addition, Figure 2 shows grip means 24 and 25 attached to the inner surface of the cover blanks 22 and 21, which grip means can, for example, be adhesive surfaces provided with a removable protective paper. Advantageously, each grip means 24; 25 is not activated until just before the cover blank 21; 22 is lowered into contact with the book blank 10. In this way, the time when the grip means 24; 25 is active and susceptible to not-wanted fastening is kept as short as possible, which diminishes not-wanted fastenings due to user errors.

The grip means 24 and 25 do not necessarily have to be an integral part of the cover part 20, instead they can be, for example, separate two-sided adhesives which are not fastened to the cover blank 21; 22 or to the cover pages 12, 13 of the book blank until in connection with the actual binding. The grip means can also be, for example, a layer of glue which is applied onto the inner surface of the cover blank 21; 22 to be glued or onto the first and second cover page 12, 13 of the book blank 10.

The individual protective covering which is placed on the cover part 20 can advantageously be placed on the cover part already before the actual binding when the cover part 20 is still unfastened, whereby it is easier to place the individual protective covering into place than placing it around the cover of a finished bound book. The individual protective covering can be fastened to the

cover part 20, for example, by activating the grip means 24 and 25 only to the extent demanded by the attachment of the individual protective covering. This may be realized, for example, in such a way that the protective paper of the adhesive surfaces acting as grip means comprises two parts of which the first covers the area to which the individual protective paper of the cover is attached and the second the area in which the cover blanks 21 and 22 are attached to the book blank 10.

Figure 3 shows a finished bound book in which the cover part 20 is advantageously bent over the book blank 10 so that the first cover blank 21 is on the first cover page 12 of the book blank 10 and the second cover blank 22 is on the second cover page 13 of the book blank 10.

Figures 4a and 4b show from two different angles a binding apparatus 40 according to the invention onto the level surface 43 of which the book blank 10 to be bound is placed. The book blank 10 is advantageously placed in the binding apparatus 40 so that the first side 15 of the book blank 10 is placed against the first supporting surface 44 of the binding apparatus 40 and the opening side 17 of the book blank 10 is placed against the second supporting surface 45 of the binding apparatus. When the supporting surfaces 44 and 45 are essentially perpendicular with respect to each other both sides 15 and 17 of the book blank 10 are firmly supported by the supporting surfaces 44 and 45 and are aligned according to the supporting surfaces.

Additionally, Figures 4a and 4b show movable supporting surfaces 46 by means of which the book blank 10 can be firmly supported in place in the binding apparatus 40.

Figures 5a, 5b and 5c show from two different angles how the cover part 20 is placed by means of the binding apparatus 40 onto the book blank 10 of Figures 4a and 4b placed in a binding apparatus 40 according to the invention. The person carrying out the binding places the cover part 20 in the binding apparatus so that the edge 29 intended on the first side 15 of the book blank 10 of the first

cover blank 21 is supported on the third supporting surface 41 of the binding apparatus and aligned according to said supporting surface 41. Similarly, the edge 26 intended on the opening side 17 of the book blank 10 of the first book blank 21 is supported and aligned to the fourth supporting surface 42 of the binding apparatus 40. The third supporting surface 41 is advantageously parallel to the first supporting surface 44 and the fourth supporting surface 42 is advantageously parallel to the second supporting surface 45.

The cover part 20 does not necessarily have to be straight, as shown in Figures 5a, 5b and 5c. The second cover blank 22 can, for example, be bent upwards in order to get a better grip of the first cover blank 21.

When the first cover blank 21 is aligned by means of the third supporting surface 41 and the fourth supporting surface 42 of the binding apparatus 40, the cover blank 21 is lowered towards the book blank 10 still supported on the supporting surfaces 41 and 42, as shown in Figure 5b. Upon contact with the first cover page 12 of the book blank 10 the first cover blank 21 is attached to it by means of the grip means 24, as shown in Figure 5c.

Figure 6 shows an enlarged view of the case according to Figure 5c, in which the first cover blank 21 is attached by means of the grip means 24 to the first cover page 12 of the book blank 10. In order to clarify the figure several parts shown in Figures 5a, 5b and 5c have been left out of Figure 6, as for example the movable supporting surfaces 46. Figure 6 shows how the pages 14 of the book blank 10 are supported against the second supporting surface 45 and the cover blank 21 against the fourth supporting surface 42. Since the second supporting surface 45 and the fourth supporting surface 42 advantageously are in different planes, a space 63 remains between the pages 14 of the book blank 10 and the fourth supporting surface 42, due to which the cover part 20 extends over the side of the book blank. Hereby the pages 14 of the book blank 10 stay protected behind the cover part 20 and retain their quality for a longer period of time.

The extension of the edge of the cover part 20 over the book blank 10 can be

adjusted by changing the relation between the second supporting surface 45 and the fourth supporting surface 42. When it is desirable for the edge of the cover part 20 to extend further from the book blank 10 the distance of the second supporting surface 45 from the fourth supporting surface 42 is increased, or when the edges of the covers are wanted closer to the book blank 10 the distance of the second supporting surface from the fourth supporting surface 42 is decreased. By placing the second and fourth supporting surface 45, 42, for example, at a distance of 3 mm from each other the cover blank 21 is made to extend 3 mm over the opening edge 17 of the book blank 10. By dimensioning the first supporting surface 44 and the third supporting surface 44 shown in Figure 4a in a corresponding way, it is possible to adjust the distance of the edge 29 of the cover blank from to the first edge 15 of the book blank 10.

In order to prevent the cover blank 21; 22 from making contact with the first and second supporting surface 44, 45 intended for the alignment and the supporting of the book blank 10 and the resulting breaking of the cover, the first supporting surface 44 and the second supporting surface 45 must not extend higher than the thinnest book blank to be bound.

When the first cover blank 21 is attached to the book blank 10, the book blank 10 and the cover part 20 attached to it at the first cover blank 21 are turned so that the first cover blank 21 stays lowermost and the second cover page 13 of the book blank stays uppermost.

Figures 7a, 7b and 7c show from two different angles the binding of the second cover blank 22 to the book blank 10 by means of a binding apparatus 40 according to the invention. In order to make the figures more clear a supporting surface parallel to the fifth supporting surface 61 of the movable supporting surfaces 46 shown in Figures 5a, 5b and 5c has been left out. In Figures 7a, 7b and 7c the book blank 10 and the cover part 20 attached to it at the first cover blank 21 are placed in the binding apparatus so that the first cover blank 21 is lowermost. The edge 30 which will come over the second side 16 of the book blank is supported and aligned to the fifth supporting surface 61 of the binding

apparatus 40. The edge 26 which will come over the opening side 17 of the book blank 10 is supported on the movable supporting surface 46 and the back part of the cover part 20 is supported on the sixth supporting surface 62.

Figure 8 shows a book blank 10 to which end bands, i.e. headbands 85 are attached. The end bands 85 make the book more beautiful by covering the part of the back part of the book blank which would otherwise remain visible and, in addition, they support the back of the cover part 20 from the direction of the book blank 10 during the fastening of the second cover blank 22 shown in Figures 7a, 7b and 7c.

The fastening of the end bands 85 to the book blank 10 is advantageously carried out by providing the end band with a grip means preferably provided with a removable protective covering. In this case, when binding the book, it is possible to cut from the longer end band blank pieces of the end band 85 corresponding to the width of the book blank 10 and attach them to the book blank by first activating the grip means by removing the protective covering and then pressing it to the book blank 10.

In Figures 7a, 7b and 7c the edge 30 which will be on the second side 16 of the book blank 10 of the second cover blank 22 is supported to the fifth supporting surface 61 of the binding apparatus 40 and bent while supported to the fifth supporting surface 61 towards the book blank 10, whereby the cover blank 22 is attached to the second cover page 13 of the book blank 10 by means of the grip means 25. Hereby both cover blanks 21, 22 of the cover part 20 are attached to the book blank 10 forming a book according to Figure 3.

An embodiment of the invention has been shown above, in which all supporting surfaces 41, 42, 44, 45, 46, 61, 62 are on the same surface level 43. However, the solution according to the invention does not restrict the location of the supporting surfaces on the same surface level. For example, the fifth and the sixth supporting surface can be placed on a separate surface level, whereby two binding apparatuses are achieved instead of one, the first of which apparatuses is used to

bind the first cover blank 21 and the second is used to bind the second cover blank 22.

It is also possible to decrease the table area demanded by the binding apparatus by realizing the fifth supporting surface 61 and the sixth supporting surface 62 by making use of the other supporting surfaces.

Figures 9a and 9b show another binding apparatus 40 according to the invention in which a fifth supporting surface has been carried out by raising the first supporting surface 44 by means of a supporting surface 81 pivoting on a hinge 82. The width of the pivoting supporting surface 81 is chosen so that when the pivoting supporting surface 81 is placed onto the first supporting surface 44 according to Figure 9b the pivoting supporting surface 81 and the first supporting surface 44 are in the same plane forming thus a fifth supporting surface. By correspondingly realizing the sixth supporting surface 62 by means of a second pivoting supporting surface turning onto the second supporting surface, the second pivoting supporting surface and the second supporting surface form the sixth supporting surface.

The fifth and the sixth supporting surfaces 61 and 62 according to the invention can also be realized by making the first and the second supporting surface 44 and 45 detachable, whereby when they have been detached the third and the fourth supporting surface 41 and 42 extend to the level surface 43 creating a fifth and a sixth supporting surface 61 and 62.

Figure 10 shows the second and the fourth supporting surface 45 and 42 of a binding apparatus according to the invention. A hole 91 has been made in the fourth supporting surface 42 through which hole it is possible for the person binding the book to hold the edge of the cover blank on both sides simultaneously with the other parts of the edge of the cover blank being supported against the fourth boundary surface 42. By this the cover blank can be better controlled when the cover blank is close to the surface of the book blank. Naturally, similar holes can be made also in the other supporting surfaces, even several in each

supporting surface, if necessary.

In order for the person binding the book to be sure that the alignment of the book blank with respect to the supporting surface has succeeded, it is useful for him to be able to see how well the book or cover blank to be aligned and supported has settled with respect to the supporting surface. This can be made easier by making at least some of the supporting surfaces of a transparent material, whereby the user can watch through the supporting surface how the book or cover blank is settled with respect to the supporting surface.

Figure 11 shows another preferred solution for controlling how the book or cover blank is settled. In the solution shown in Figure 11 a first gap 83 is made in the first 44 and the third 41 supporting surface of the binding apparatus 40 at the second supporting surface 45 and the fourth supporting surface 42. Correspondingly, a second gap 84 has been made in the fifth supporting surface 61 at the sixth supporting surface 62. The user of the apparatus can see through the gaps 83 and 84 how the blank has settled against the supporting surface. In order to make this easier there is an inclined mirror 92 outside the gap 84, by means of which the user of the apparatus can see from above whether the blank to be placed has settled well against the supporting surfaces 61 and 62. In addition, the movable supporting surfaces 46 include openings 93 through which it is possible to check manually that the blank is exactly settled against the supporting surfaces 61 and 62.

A book bound according to the invention may advantageously be provided with an individual protective covering which is attached to the cover blank essentially across its whole area covering the cover part. Advantageously, the attachment can be carried out by means of grip means placed in the surface of the individual protective covering facing the cover blank, which means is advantageously provided with a detachable protective covering.

The invention is not limited only to the embodiments presented in the foregoing, but it may vary in many different ways within the scope of the inventive idea

disclosed in the claims.

Claims

1. A method for binding covers to a book blank, **characterized in that**

(a) a first side (15) of the book blank (10) is supported and aligned by means of a first supporting surface (44),

(b) a second side (17) of the book blank (10), which is perpendicular to the first side, is supported and aligned by means of a second supporting surface (45), after which

(c) a first edge (29) of a cover part (20) is supported and aligned by means of a third supporting surface (41), whereby the first edge (29) of the cover part (20) is directed towards the first side (15) of the book blank (10) in a way defined by the mutual relation between the first (44) and the third supporting surface (41),

(d) a second edge (26) of the cover part (20), lying perpendicularly towards the first edge (29), is supported and aligned by means of a fourth supporting surface (42), whereby the second edge (26) of the cover part (20) is directed to the second side (17) of the book blank in a way defined by the mutual relation between the second (45) and the fourth supporting surface (42),

(e) a first cover blank (21) of the cover part (20) directed on the book blank (10) is lowered into contact with a first cover page (12) of the book blank (10), whereby the first cover blank (21) will attach to the first cover page (12) of the book blank (10) by means of a grip means (24), after which

(f) the book blank (10) and the cover part (20) attached to it by means of the grip means (24) are turned in such a way that the first cover blank (21) attached to the book blank (10) is left lowermost, after which

(g) the first cover blank (21), attached to the book blank (10), of the cover part (20) is supported and aligned by means of a fifth (61) and a sixth supporting surface (62), after which

(h) a second cover blank (22) of the cover part (20) is aligned parallel with the first cover blank (21) by means of the fifth (61) and the sixth supporting surface (62), and finally

(i) the second cover blank (22) of the cover part (20) is lowered into contact with a second cover page (13) of the book blank (10), whereby the second cover blank (22) is attached to the second cover page (13) of the book blank (10) by means of the grip means (25).

2. A method according to claim 1, **characterized in that** the grip means (24, 25) are activated at different times.

3. A method according to claim 2, **characterized in that** the grip means (24, 25) are activated just before the cover blank (22, 21) is lowered into contact with the book blank (10).

4. A method according to claim 1, **characterized in that** an individual protective covering, which is intended on the cover part (20), is put into place before the actual binding.

5. A method according to claim 1, **characterized in that** the book blank (10) and/or the cover part (20) is supported by means of at least one movable supporting surface (46).

6. A method according to claim 1, **characterized in that** the fifth (61) and the sixth supporting surface (62) are formed by raising the first (44) and the second supporting surface (45).

7. A method according to claim 6, **characterized in that** the raising of the first and the second supporting surface (44, 45) is achieved by turning a first pivoting supporting surface (81) onto the first supporting surface (44) and a second pivoting supporting surface onto the second supporting surface (45).

8. A method according to claim 1, **characterized in that** the fifth (61) and the sixth supporting surface (62) are formed by detaching the first and the second supporting surface (44, 45), whereby the third and the fourth supporting surface

(41, 42) extend to the level surface (43) of the binding apparatus (40) forming the fifth (61) and the sixth supporting surface (62).

9. A method according to claim 1, **characterized in that** during the actual binding the back part (23) of the cover part (20) is supported from the side of the book blank (10) by means of end bands (85) which are attached to the back of the book blank (10).

10. A book binding apparatus (40) for binding covers (20) to the book blank (10), **characterized in that** the apparatus comprises

- a level surface (43),
- mutually perpendicular third and fourth supporting surfaces (41, 42) on the level surface (43),
- a first supporting surface (44) parallel with the third supporting surface (41) and a second supporting surface (45) parallel with the fourth supporting surface (42) on the level surface (43) in a space restricted by a right angle formed by the third and fourth supporting surface (41, 42), and
- mutually perpendicular fifth and sixth supporting surfaces (61, 62) on the level surface (43).

11. A book binding apparatus according to claim 10, **characterized in that** the height of the first and the second supporting surface (44, 45) from the level surface (43) is less than the thickness of the thinnest book blank (10) to be bound.

12. A book binding apparatus according to claim 10, **characterized in that** the distances between the first and the third supporting surface (44, 41) and the second and fourth supporting surface (45, 42), respectively correspond to the distance which the edges (26, 27; 28, 29; 30, 31) of the cover blank (20) to be bound extend over the sides (17; 15; 16) of the book blank (10).

13. A book binding apparatus according to claim 10, **characterized in that**

the binding apparatus (40) comprises at least one separate supporting surface (46), the distance of which is adjustable with respect to the other supporting surfaces (41, 42, 44, 45, 61, 62).

14. A book binding apparatus according to claim 10, **characterized in that** at least one supporting surface (41, 42, 44, 45, 46, 61, 62) comprises at least one hole (91) or opening (93) for the fingers.

15. A book binding apparatus according to claim 10, **characterized in that** at least one of the supporting surfaces (41, 42, 44, 45, 46, 61, 62) is at least partly made of a transparent material.

16. A book binding apparatus according to claim 10, **characterized in that** at least one of the supporting surfaces (41, 42, 44, 45, 46, 61, 62) comprises a narrow gap (83, 84).

17. A book binding apparatus according to claim 16, **characterized in that** outside the narrow gap (83, 84) there is an inclined plane mirror (92) by means of which it is possible to look into the gap (83, 84) from above.

18. A book binding apparatus according to claim 10, **characterized in that** at least the first and the second supporting surface (44, 45) are detachable.

19. A book binding apparatus according to claim 10, **characterized in that** the fifth and the sixth supporting surface (61, 62) are located on another level surface than the first, the second, the third and the fourth level surface (44, 45, 41, 42).

20. A book binding apparatus according to claim 10, **characterized in that** at least one of the supporting surfaces (41, 42, 44, 45, 46, 61, 62) is a supporting surface (81) pivoting on a hinge (82) and lying in the same plane with another supporting surface (41, 42, 44, 45, 46, 61, 62).

21. A book bound with the method according to claim 1 comprising a cover part (20) and a book blank (10), **characterized in that** the book blank (10) comprises an end band (85).

22. A book according to claim 20, **characterized in that** the end band (85) comprises a grip means provided with a removable protective covering.

23. A book bound with the method according to claim 1 comprising a cover part (20) and a book blank (10), **characterized in that** on the cover part (20) there is an individual protective covering which is attached to the cover part (20) essentially across its total area lying on the cover part (20).

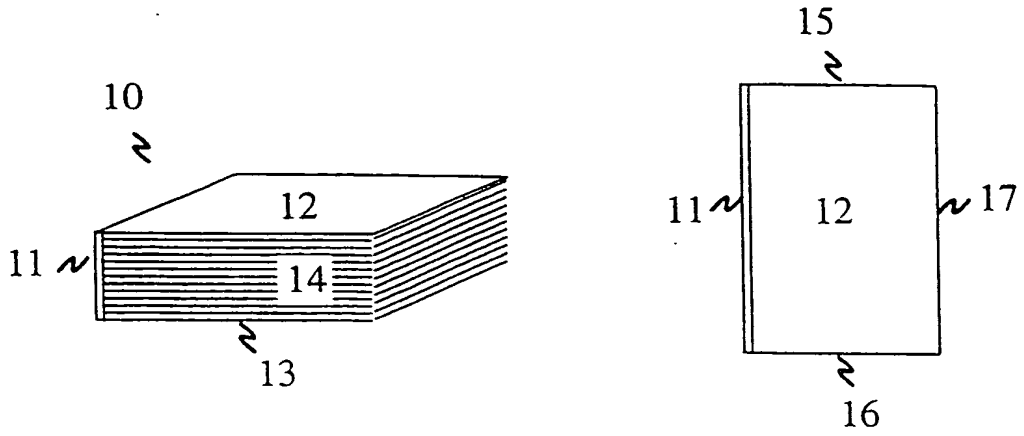

Fig. 1

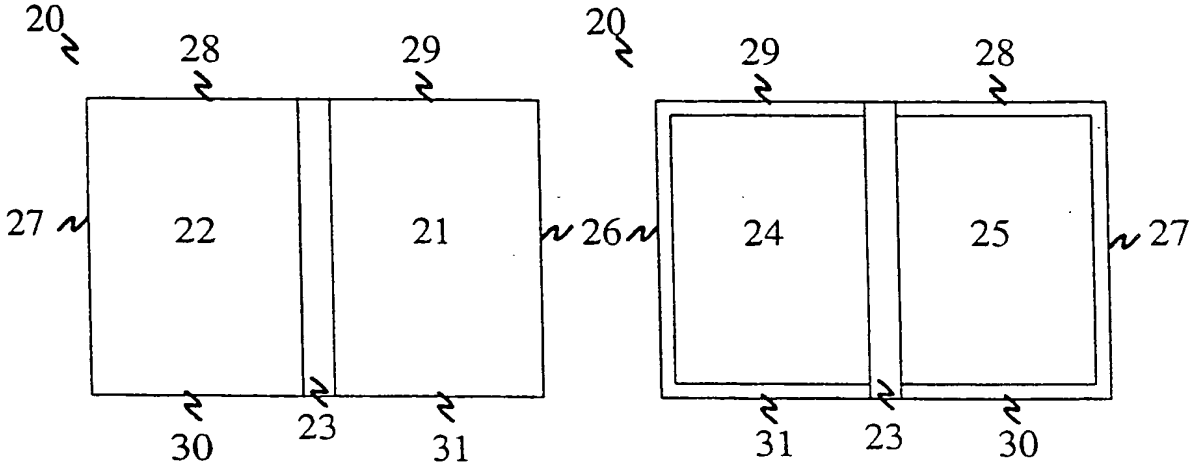

Fig. 2

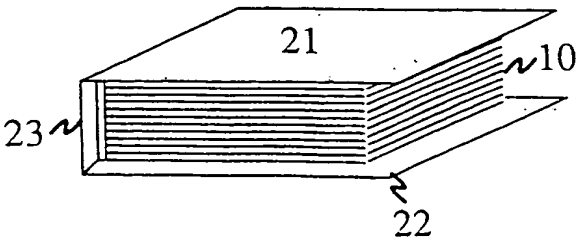

Fig. 3

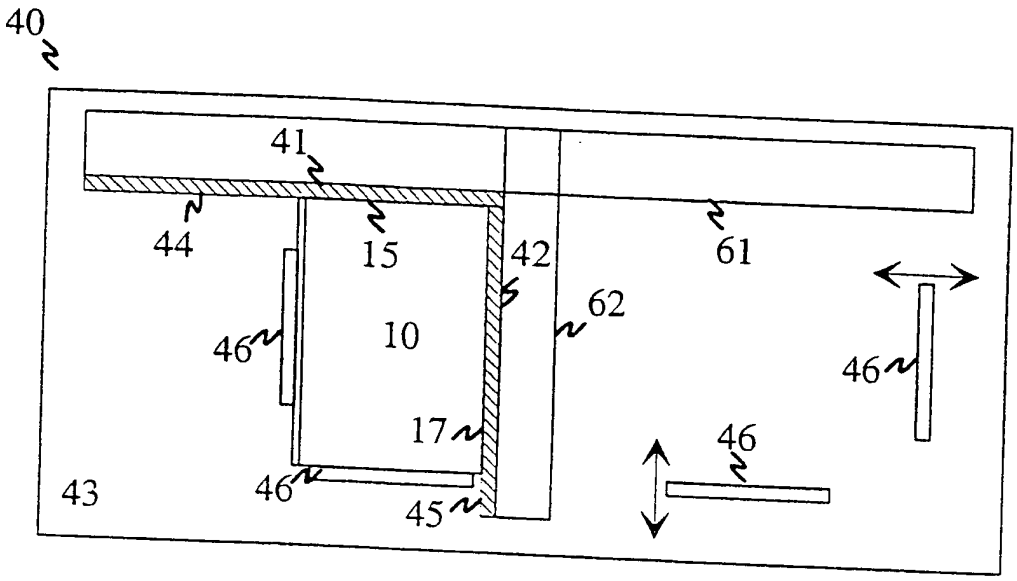
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Fig. 4a

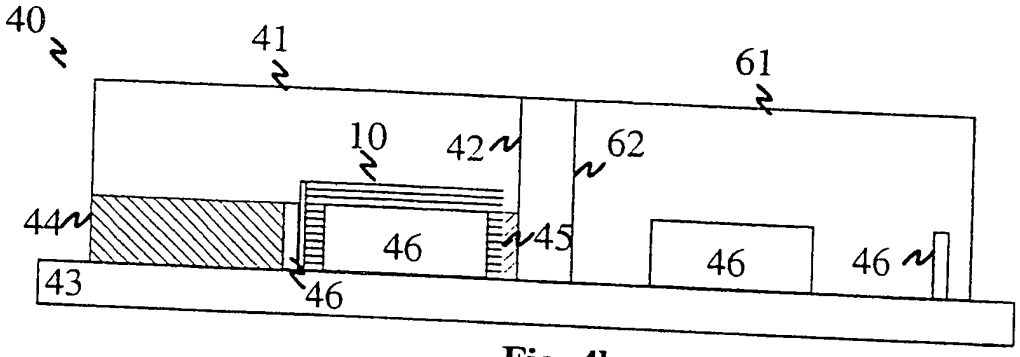
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Fig. 4b

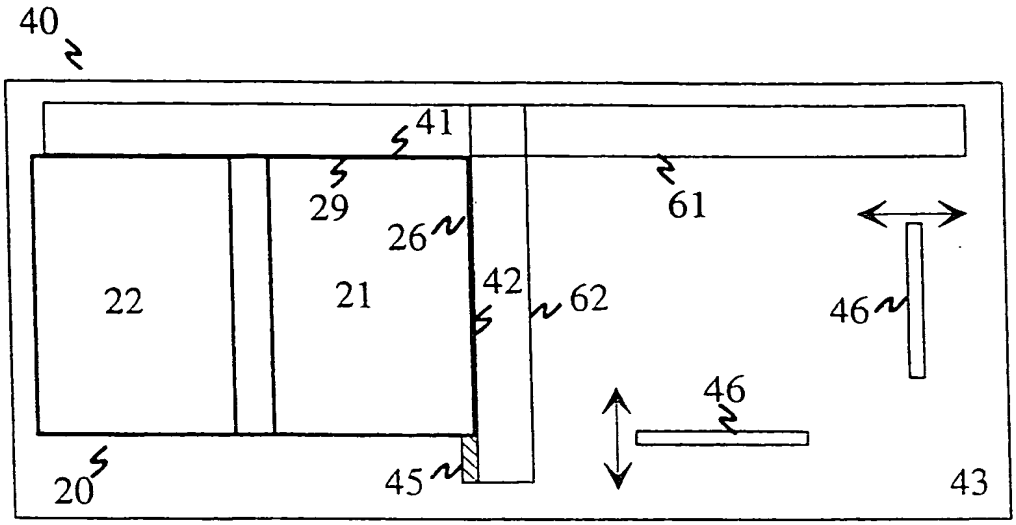

Fig. 5a

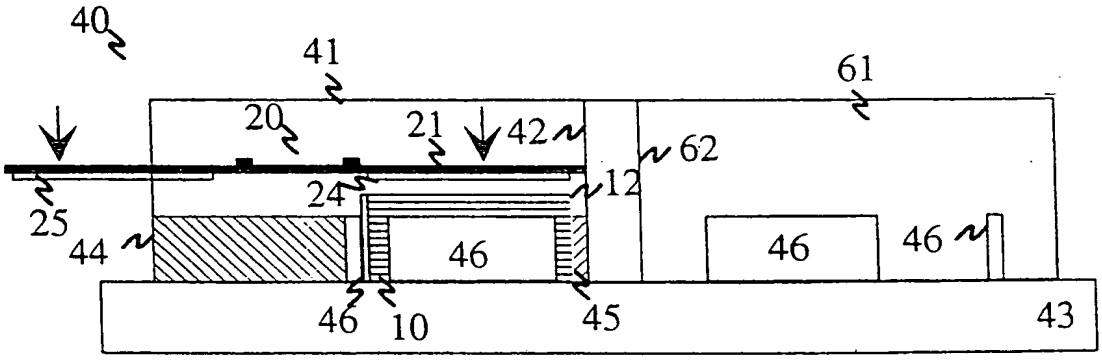

Fig. 5b

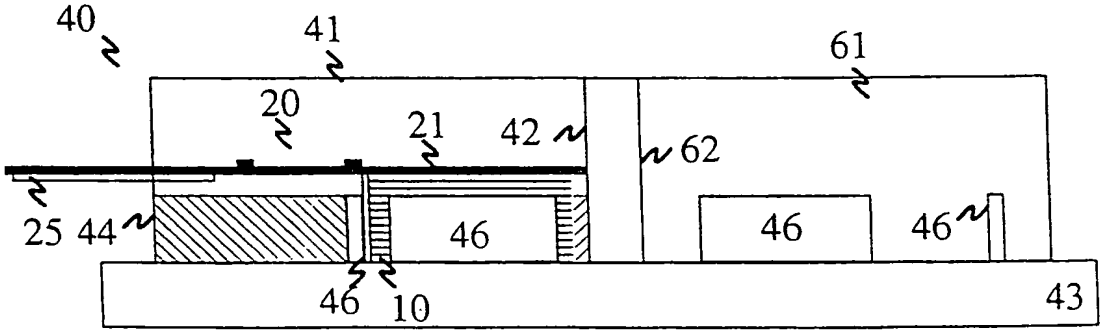

Fig. 5c

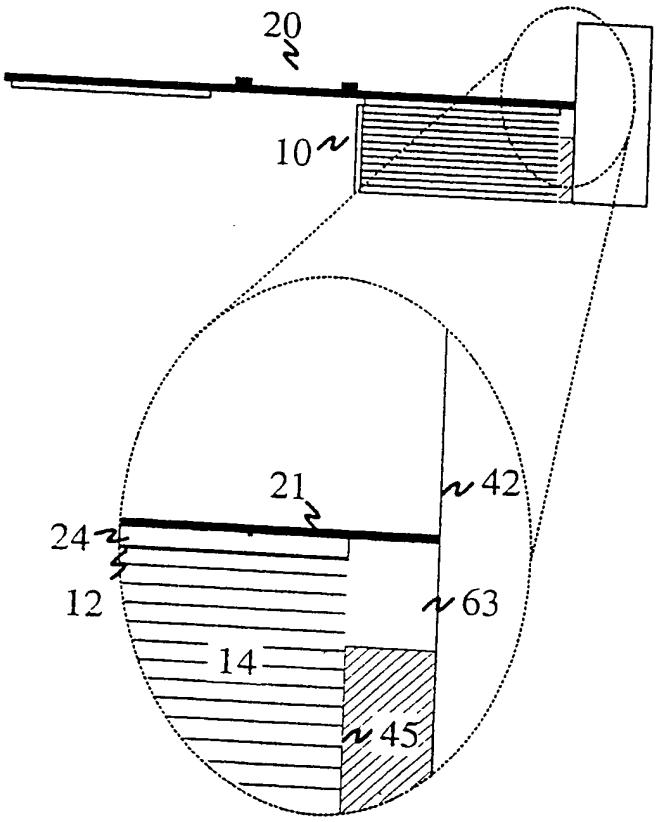

Fig. 6

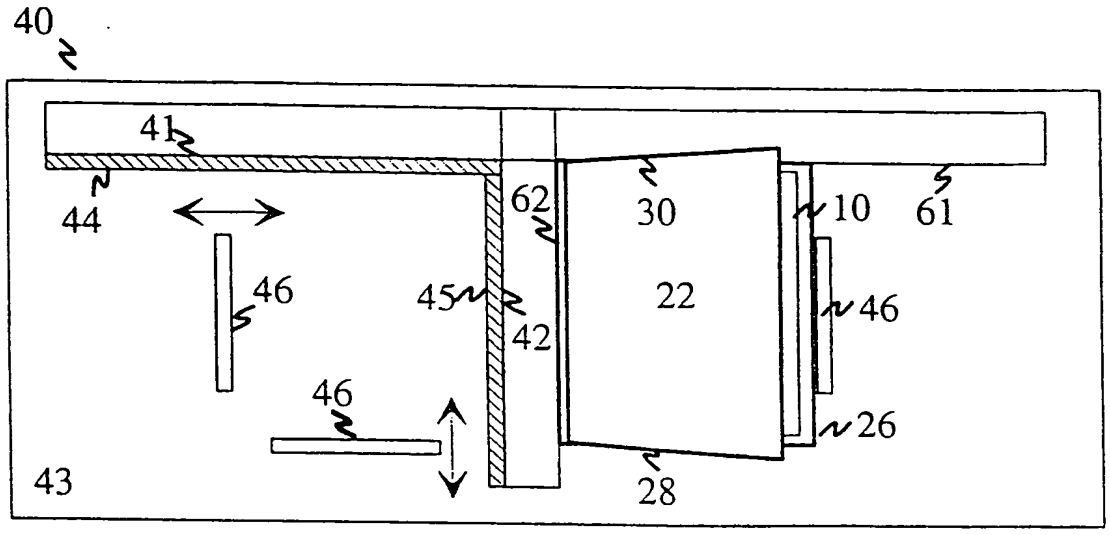

Fig. 7a

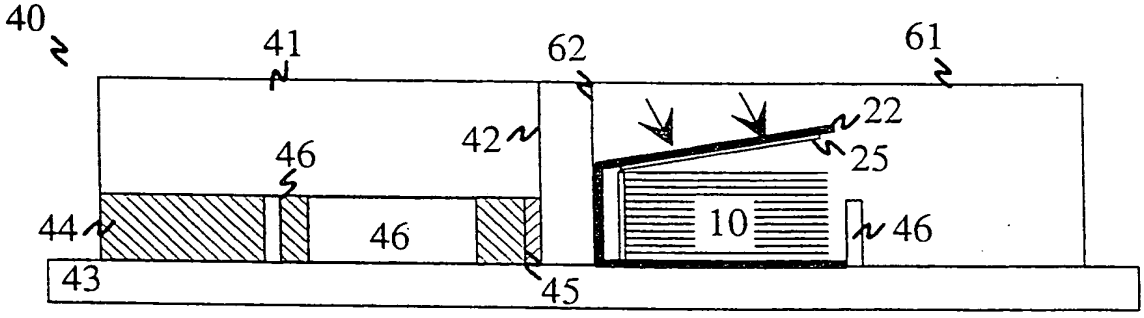

Fig. 7b

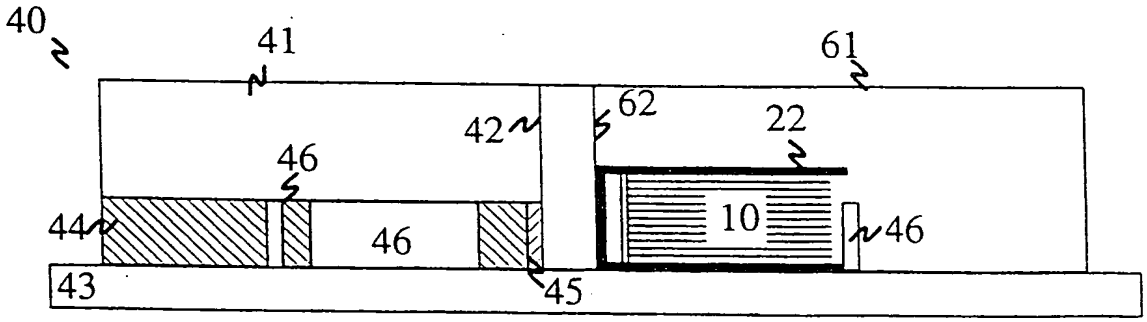

Fig. 7c

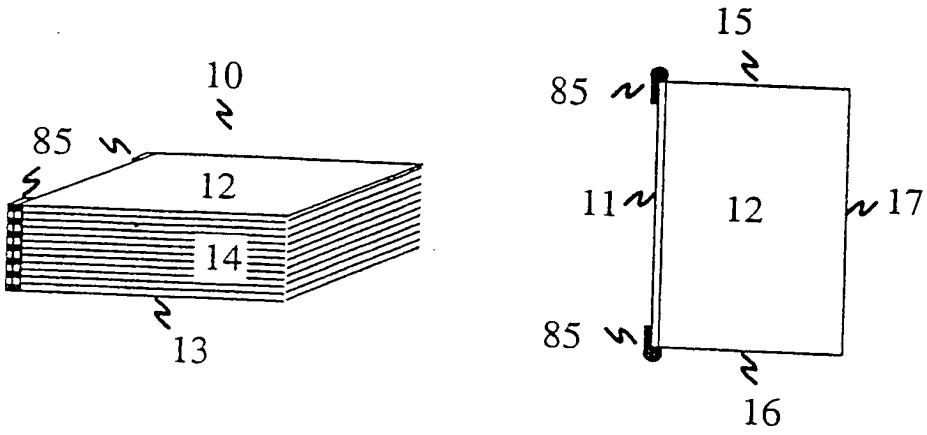

Fig. 8

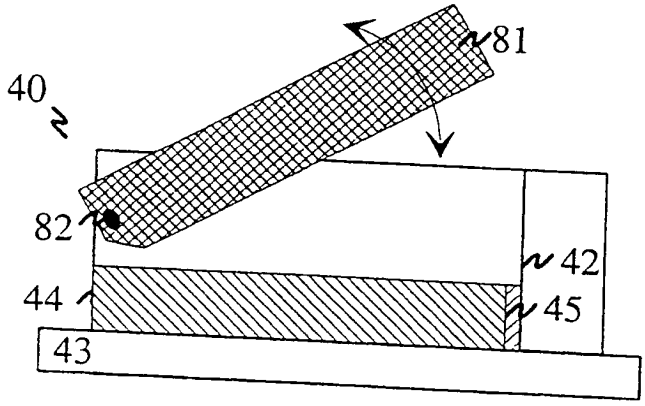

Fig. 9a

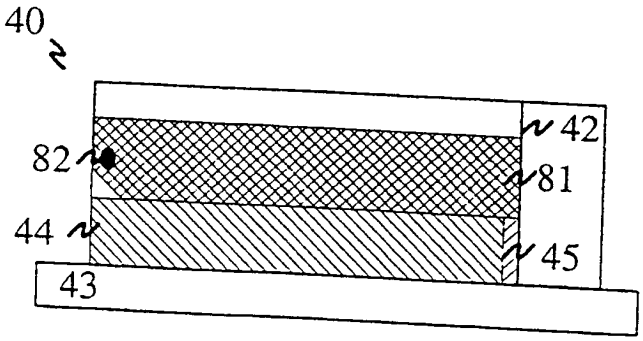

Fig. 9b

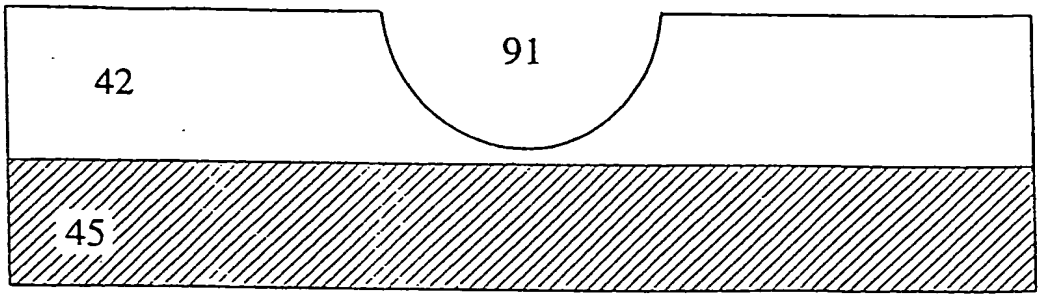

Fig. 10

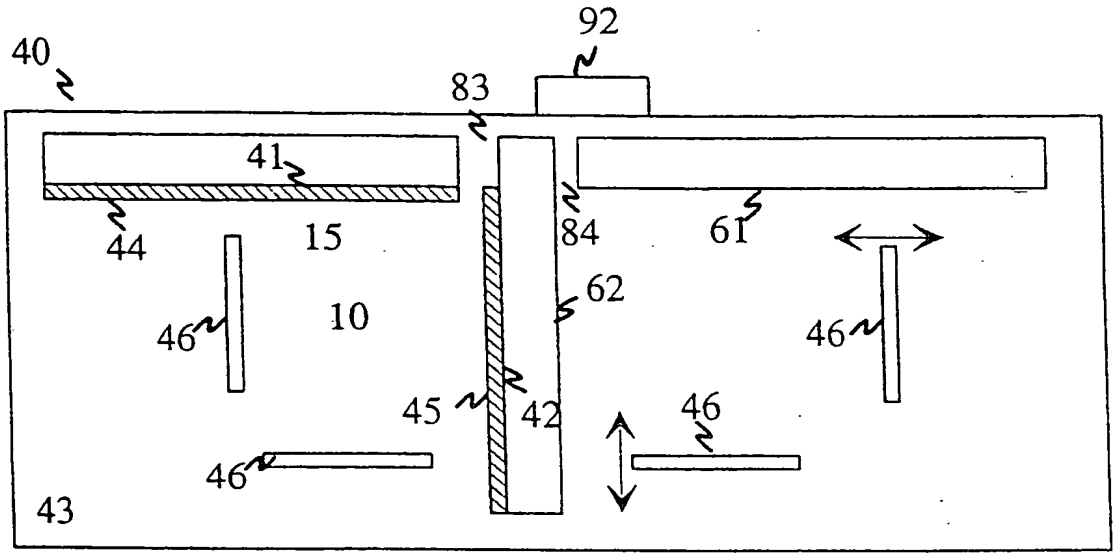

Fig. 11a

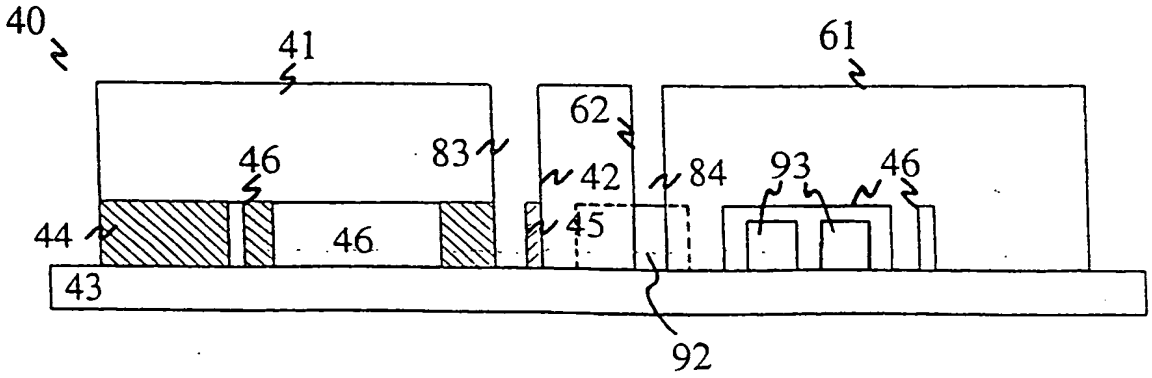

Fig. 11b

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 99/00086

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: B42C 11/04 // B42C 11/00
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: B42C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EDOC, JAPIO, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3912304 A (ABILDGAARD ET AL), 14 October 1975 (14.10.75), figures 6,11 --	
A	US 3608115 A (T.S. CHOU ET AL), 28 Sept 1971 (28.09.71), figure 7 -- --------	

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" erlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
7 May 1999	06 -06- 1999
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Sune Söderling Telephone No. +46 8 782 25 00

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

07/04/99

International application No.
PCT/FI 99/00086

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3912304 A	14/10/75	US 3825963 A	30/07/74
US 3608115 A	28/09/71	NONE	